

No. 682,908.

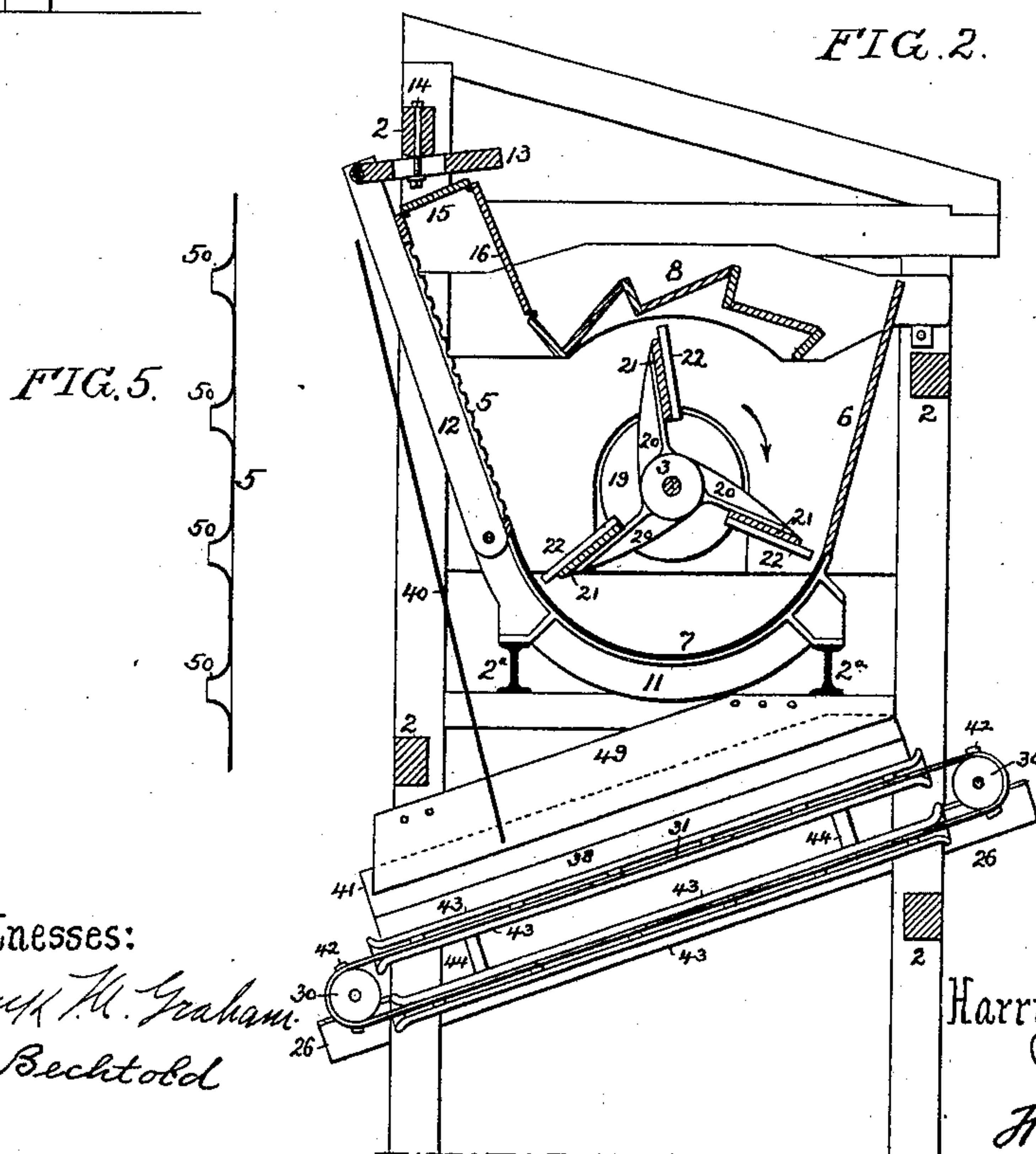
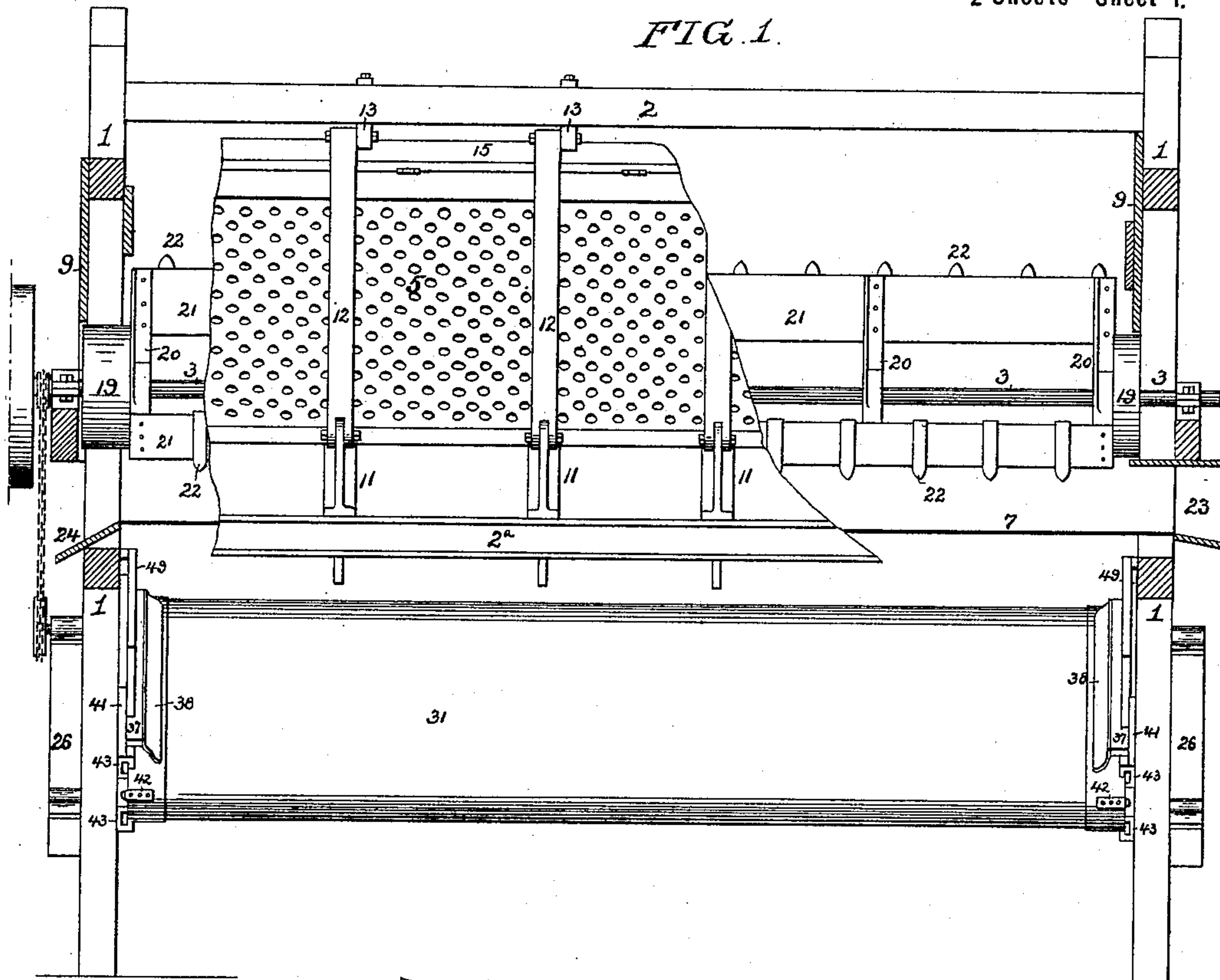
Patented Sept. 17, 1901.

H. H. BRAKELEY.  
MACHINE FOR SHELLING PEAS OR BEANS.

(Application filed Dec. 15, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
Frank M. Graham.  
F. E. Bechtold

Inventor  
Harry H. Brakeley  
by his Attorneys  
Horton & Horton

No. 682,908.

Patented Sept. 17, 1901.

H. H. BRAKELEY.  
MACHINE FOR SHELLING PEAS OR BEANS.

(Application filed Dec. 15, 1897.)

(No Model.)

2 Sheets—Sheet 2.

FIG. 4.

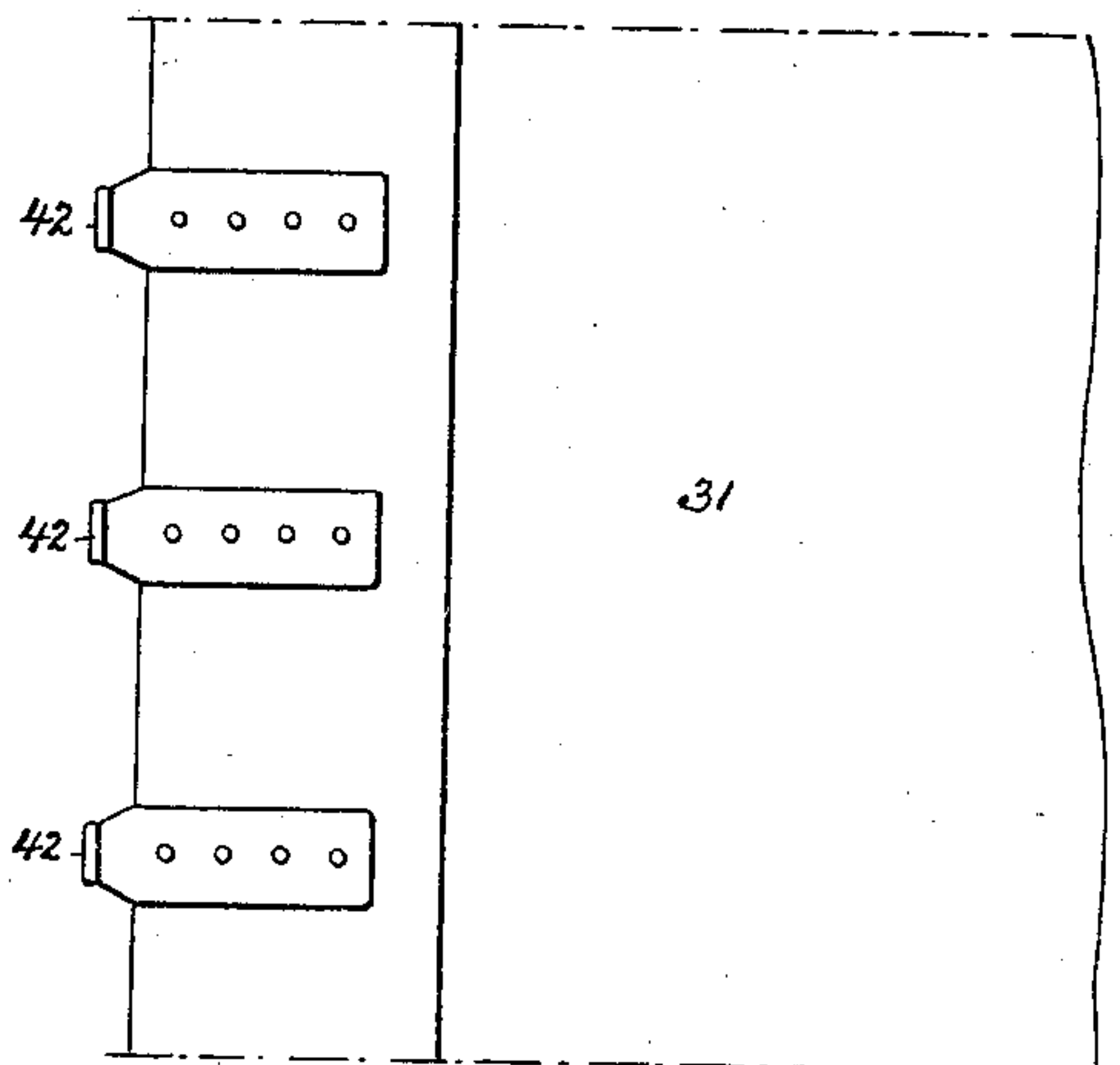


FIG. 3.

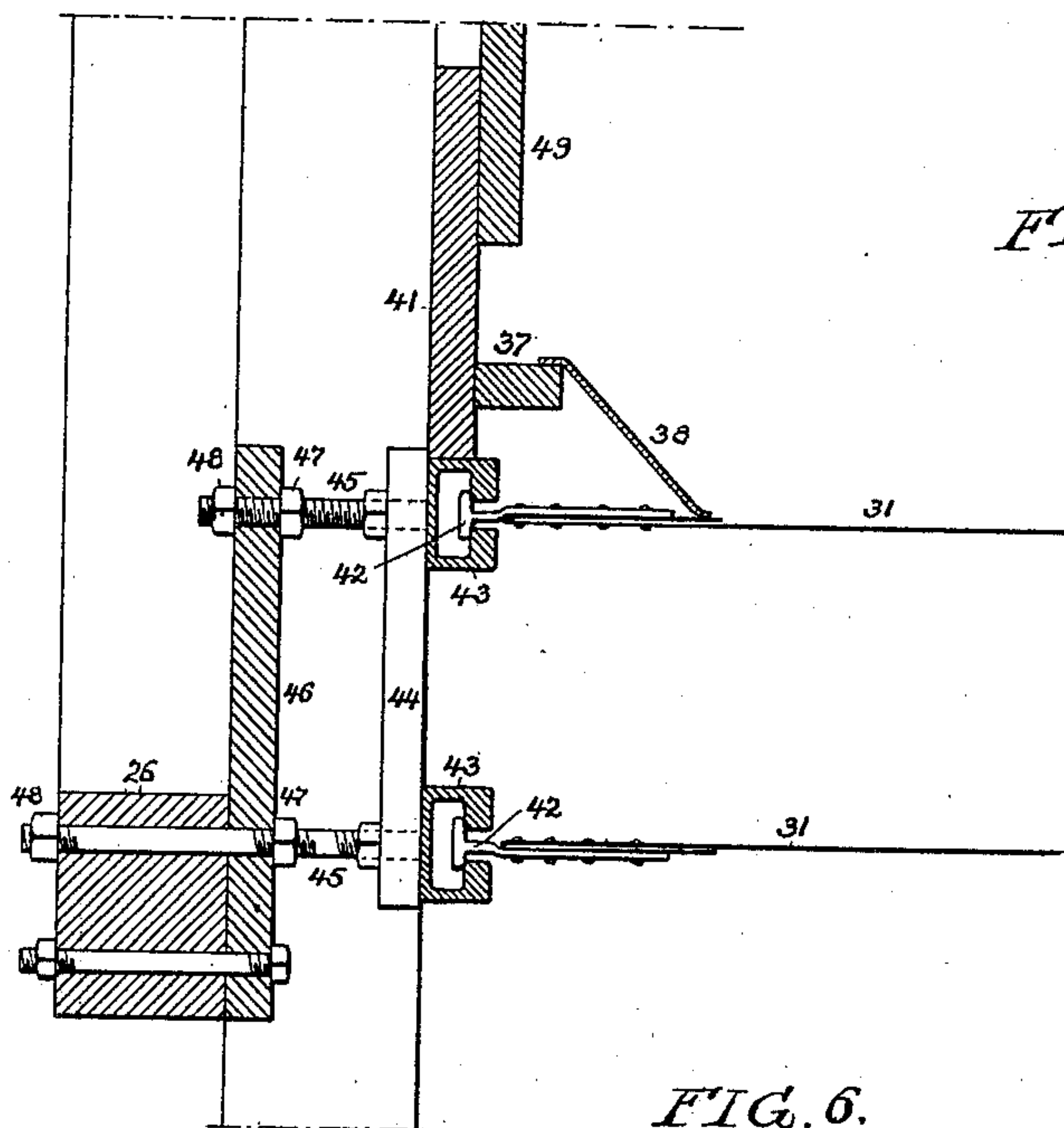


FIG. 6.

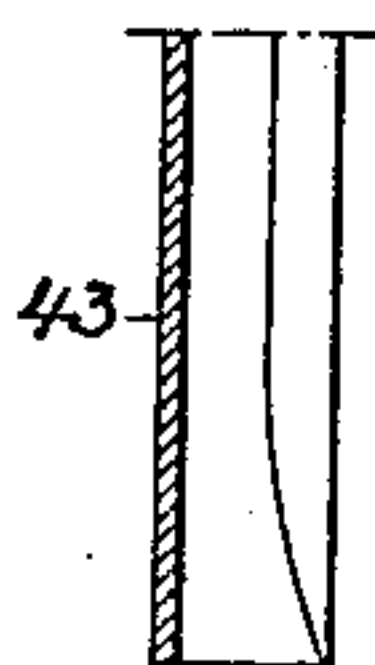
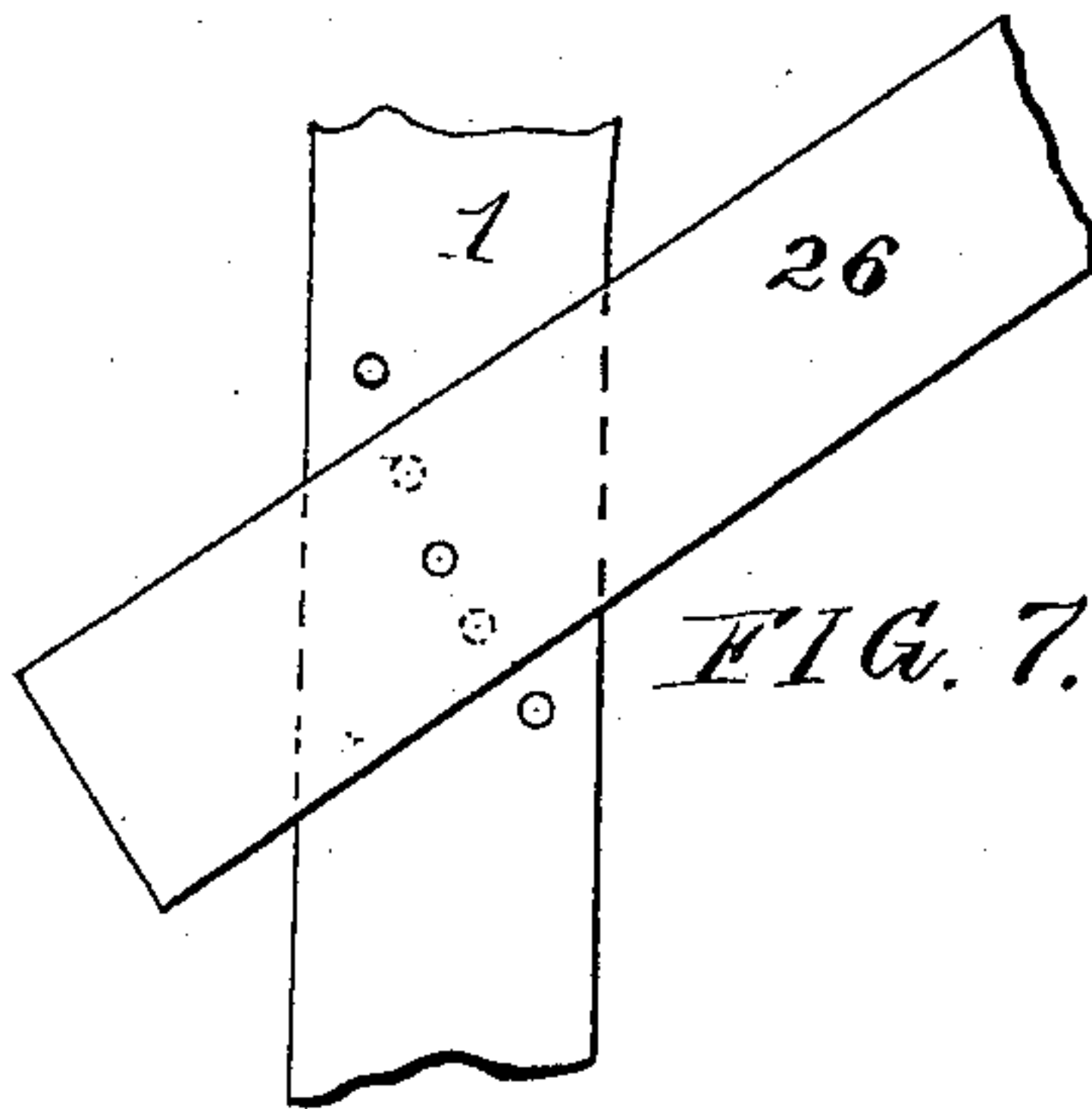


FIG. 7.



Witnesses:  
Frank M. Graham  
F. E. Bechtold.

Inventor  
Harry H. Brakeley  
by his Attorneys  
Howan & Howan



# UNITED STATES PATENT OFFICE.

HARRY H. BRAKELEY, OF BORDENTOWN, NEW JERSEY.

## MACHINE FOR SHELLING PEAS OR BEANS.

SPECIFICATION forming part of Letters Patent No. 682,908, dated September 17, 1901.

Application filed December 15, 1897. Serial No. 661,996. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY H. BRAKELEY, a citizen of the United States, and a resident of Bordentown, New Jersey, have invented certain Improvements in Machines for Shelling Peas or Beans, of which the following is a specification.

My invention consists of certain improvements in the machine for shelling peas or beans for which I obtained Letters Patent No. 593,426 on the 9th day of November, 1897, the objects of my present invention being to provide a more acceptable means for the discharge of the shelled peas or beans than that of the patented machine, to facilitate the adjustment of the cleaner-belt, whereby the shelled peas or beans are separated from the chaff and dirt, and to insure the proper lateral stretching of said belt and the keeping of it in stretched condition while in use. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of my improved machine for shelling peas or beans with parts broken away to show the internal construction. Fig. 2 is a transverse section of the machine. Fig. 3 is an enlarged sectional view of part of the machine. Fig. 4 is an enlarged view of part of one edge of the cleaner-belt. Fig. 5 is an enlarged section of part of the front plate of the working-chamber casing of the machine. Fig. 6 is a sectional plan view of part of the machine, and Fig. 7 is a side view of another part of the same.

The fixed frame of the machine comprises the opposite end frames 1, which are connected together by suitable longitudinal bars 2 and support a pair of longitudinal beams or girders 2<sup>a</sup>, as shown in Fig. 2, said fixed frames carrying suitable bearings for a longitudinal shaft 3, to which power can be applied in any suitable manner.

The working chamber of the machine extends longitudinally from one end frame to the other and is bounded by front and back plates 5 and 6 and by a bottom plate 7, a top inclosure 8, and end boards 9, the bottom plate 7 being concave and by preference of segmental form concentric with the axis of the shaft 3 and being stiffened or strengthened and supported by means of curved transverse bars 11, mounted upon the beams

or girders 2<sup>a</sup>. The front and back plates 5 and 6 of the inclosure flare upwardly and outwardly, so that the interior of said working chamber gradually increases in cubic capacity from the concave lower plate upward. The rear plate 6 occupies a fixed position; but the front plate 5 is mounted upon arms 12, hung at their lower ends to the upper ends of the bars 11 and pivoted at the upper ends to slotted bars 13, each of which can after adjustment be secured to one of the longitudinal bars 2 of the frame by means of a securing-bolt 14.

The upper end of the front plate 5 is connected by a hinge to the front end of a flap 15, the rear end of which is hinged to the upper end of a flap 16, which is hinged at the lower end to the front of the top inclosure 8 of the working chamber, these flaps being free to yield as the upper end of the front plate 5 is adjusted in or out. This construction is, however, not absolutely essential to the proper carrying out of my invention, as I may in some cases dispense with the top inclosure where the front and back plates of the working chamber are carried up to such a height that there is not likely to be any discharge of vines, pods, or shelled peas or beans over the top of the same.

The shaft 3 has arms 20, with beater-blades 21, provided with projecting fingers 22, as in the former machine, and the shaft 3 has at each end cylindrical disks 19, fitting with reasonable snugness in openings in the end boards of the working chamber, so as to prevent wrapping of the vines around the shaft 3 at either end of the machine. The blades 21 are slightly inclined longitudinally, so as to feed the contents of the working chamber, slowing from the receiving to the discharge end of the same, said working chamber having at the receiving end a feed-spout 23 and at the opposite end a delivery-chute 24, as usual.

Outside of the fixed end frames 1 of the machine are inclined bars 26, pivoted near their upper ends to vertical posts of said fixed frame and capable of being raised and lowered at their lower ends and secured in position after adjustment by any suitable means, a simple plan being by means of a bolt passing through the bar 26 and through any one of a series of openings formed in the vertical post of the frame, as set forth in my former



patent and as shown in Fig. 7. These bars carry bearings for the shafts of upper and lower drums 30, which may be either cylindrical or prismatic, and around these drums passes a belt or apron 31, the upper drum being rotated in any available way—as, for instance, by means of a sprocket-wheel and chain connection with the shaft 3, as shown in the former patent—so that the belt or apron is compelled to travel in the direction of the arrow, Fig. 2. In order to laterally stretch the belt 31 and maintain it in this stretched condition, said belt has at each side a series of projecting hooks 42, as shown in Fig. 3, which hooks may be of any available character, although they are preferably T-shaped, as shown, and are provided with stems or shanks extending inward over the belt 31 and secured thereto by bolts, rivets, or other available fastenings, the edges of the belt being preferably folded or doubled, so as to provide additional body for holding said fastenings. The projecting hooks 42 of the belt engage with slotted guides 43, which follow the upper and lower runs of the belt, although, if desired, the guides following the lower run of the belt may be dispensed with in some cases, as the maintenance of the belt in the laterally-stretched condition on the lower run is not essential. The guides 43 are vertically flared at the ends, so as to provide flaring mouths for the easy entrance and delivery of the hooks 42, and the front edges of each guide 43 are also by preference beveled laterally, as shown in Fig. 6, so that the hooks will be drawn laterally outward to a slight extent immediately after they enter the guides in order to slightly stretch or tighten the belt. The guides 43 are mounted upon bars 44, which in turn are carried by bolts 45, projecting from studs 46, secured to and projecting upwardly from the bars 26, the bolts 45 being threaded and provided with nuts 47 and 48, whereby on turning these nuts the bolts may be adjusted laterally in respect to the studs 46, and corresponding lateral adjustment of the guides 43 thus effected to suit the width of the belt 31. The upper guides 43 carry guard-boards 41, which have projecting ribs 37, to which are secured the upper ends of flexible flaps or aprons 38, the lower edges of which rest upon the upper run of the traveling belt 31, these flexible flaps being tapered or of greater width at the lower than at the upper end for the purpose set forth in my former patent.

Depending from the fixed frame of the machine just inside of the guard-boards 41 are aprons 49, which overlap the said guard-boards 41 and prevent any escape of the shelled peas or beans laterally from the belt 31. The front plate 5 of the working-chamber casing is preferably formed of sheet metal and has openings formed therein by punching from the inner to the outer side of the same, so that the raised burs or ridges 50 are on the outside of the plate, as shown in

Fig. 5, the openings presenting on the inside of the plate smooth rounded surfaces which will not cut the peas or beans nor interfere with their free discharge through the openings.

Outside of the front plate 5 of the machine is a deflector-plate 40, which directs downward onto the belt 31 all matter discharged through the openings of the front plate 5.

The operation of the machine is as follows: The peas or pods having the vines or a portion of the same attached thereto as they enter through the feed-spout and are still partially confined are struck and carried upward clear of the bottom plate by the blades 21, traveling in the direction of the arrow, Fig. 2, and are in their passage rubbed between the ends of said blades and the end board 9. As they rise clear of the bottom plate they fly upward and outward by centrifugal force across the surface of the perforated front plate and then slide downward till they collect in considerable quantities at the lower edge of the front plate and are caught and carried around in bunches by the blades 21 and compressed, beaten, and rubbed between the edges of said blades and the top inclosure. They then fall into the gradually-narrowing space between the blades and the back plate 6, there receiving further compression, beating, and rubbing. At this point the fingers 22 on the blades catch the vines and pods and carry them around over the bottom plate, whence they are again tossed upward, as before, the rubbing between the end board and the ends of the blades occurring only as they enter the machine. The operation is repeated as the vines and pods are forced slowly from the feed to the discharge end of the machine, the vines and pods being by centrifugal action kept to the outer edges of the blades 21 and prevented from becoming entangled with the shaft 3. The combined pounding and rubbing actions between the surfaces opens the pods and liberates the peas, and as the vines and pods are tossed upward over the perforated front plate they are permitted to loosen or open out and the peas fall through the perforations, further escape being effected as the vines slide downward over said front plate.

My invention is not confined to the exact form of the working chamber shown—as, for example, it is obvious that the back plate may be corrugated in the same manner as the top inclosure; but I prefer the present form, as it retains the narrowing space between the blades and the back plate.

As before stated, the top inclosure may be omitted altogether by changing the proportions of the machine; but for economy of construction and satisfactory working I prefer to retain it.

The shelled peas or beans are directed by the deflector 40 onto the upper surface of the upwardly-inclined traveling belt 31, and the chaff or dirt which of necessity escapes in



certain quantity from the working chamber is carried upwardly by the belt and delivered from the same where it passes over the uppermost drum 30, the peas or beans rolling downwardly on the belt and being delivered from the same over the lower drum 30.

By mounting not only the belt 31 and its drums, but also the belt-guides 43 and flexible flaps 38, upon the adjustable side bars 26 all of the appurtenances of the belt are adjusted simultaneously with the same, and the operation of adjustment is thereby materially facilitated.

The described method of stretching and guiding the belt 31 is preferable to the use of cross-slats riveted to the belt, for the reason that in the latter construction the slats, if on the upper side of the belt, tend to carry the peas or beans upward instead of permitting them to roll downward, as intended, while if the slats are on the inner side of the belt the edges of the slats always strike the belt at the same points, and, no matter how carefully rounded they may be, they eventually cut it, and in practice this materially shortens the life of the belt. By avoiding the use of slats any angles or projections on the drums 30 which may be presented to the belt never strike repeatedly in the same place, thus distributing the wear and prolonging the life of the belt.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination, in a machine for shelling peas, or beans, of a working-chamber inclosure having end plates, front and rear plates, said front plate being perforated, a bottom plate joined at its front end to the lower portion of the perforated front plate, a rotating shaft having a series of lifting-blades thereon, which do not approach closely to the working-chamber inclosure at any point, and provision for introducing the vines at one end of the working chamber and delivering them from the other end, the front plate of the inclosure flaring outwardly toward the top, whereby as the vines are lifted by the rotating blades they can open out so as to discharge the shelled peas or beans through the perforations of said front plate, substantially as specified.

2. The combination in a machine for shelling peas or beans, of the rotating beaters, with a working-chamber casing having a concave bottom plate, and a perforated front plate extending upwardly and outwardly from the front edge of said bottom plate, said perforated front plate being pivoted at its lower end and provided at its upper end with means for adjusting it laterally so as to vary its inclination, substantially as specified.

3. The combination in a machine for shelling peas or beans, of the rotating beaters, with a working-chamber casing having a concave bottom plate, and an upwardly and

outwardly flaring perforated front plate pivoted at the lower end and adjustable at the upper end, said upper end being connected to a series of pivoted flaps whereby its adjustment can be effected without forming an opening in the top inclosure of the working chamber, substantially as specified.

4. The combination, in a machine for shelling peas, or beans, of mechanism for separating and discharging the peas or beans from the pods, an inclined belt disposed below said mechanism so as to receive the peas or beans and chaff therefrom, flexible side flaps bearing upon the upper run of said belt, a side structure to which said flaps are secured, and adjustable side bars carrying both the belt-drums and the side structures which support said flexible side flaps, whereby both the belt and the side flaps will be adjusted simultaneously and the same relation always preserved between them, substantially as specified.

5. The combination in a machine for shelling peas or beans, of shelling mechanism with an inclined belt disposed below the same, projecting hooks or fingers at each edge of said belt, and slotted guides for engaging with said hooks, said guides being laterally flared at the inlet end so as to impart a lateral pull to the hooks after they enter the same, substantially as specified.

6. The combination in a machine for shelling peas or beans, of shelling mechanism with an inclined belt disposed below the same, projecting hooks or fingers at each edge of said belt, and slotted guides for engaging said hooks or fingers, said guides having mouths which flare both vertically and laterally, substantially as specified.

7. The combination in a machine for shelling peas or beans, of shelling mechanism, an inclined belt disposed below the same, projecting hooks or fingers at the opposite edges of said belt, slotted guides for engaging said hooks, and adjustable bars carrying the belt-drums and slotted guides, whereby simultaneous adjustment of the belt and its guides is effected, substantially as specified.

8. The combination in a machine for shelling peas or beans, of shelling mechanism, an inclined belt disposed below the same, projecting hooks or fingers at the opposite edges of the belt, slotted guides for said hooks, bars carrying said guides, side bars carrying the belt-drums and having projecting studs, bolts passing through said studs, and connected to the bars which carry the guides, and nuts on said bolts, whereby they can be adjusted laterally, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY H. BRAKELEY.

Witnesses:

F. E. BECHTOLD,  
JOS. H. KLEIN.